



Antero Resources  
1615 Wynkoop Street  
Denver, CO 80202  
Office 303.357.7310  
Fax 303.357.7315

August 9, 2019

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
601 57<sup>th</sup> Street  
Charleston, WV 25304

To Whom It May Concern:

Please find enclosed the Well Operator's Report of Well Work, Form WR-35 (including As-Drilled Survey Plat, Directional Survey and FracFocus report), Discharge Monitoring Report Form WR-34 and corresponding logs for the following wells:

- Beem Unit 3H (API # 47-095-02474)—Pyle Run Pad
- Heintzman Unit 1H (API # 47-095-02526)—Pyle Run Pad
- Heintzman Unit 2H (API # 47-095-02527)—Pyle Run Pad
- Heintzman Unit 3H (API # 47-095-02528)—Pyle Run Pad
- Spock Unit 1H (API # 47-095-02478)—Pyle Run Pad
- Spock Unit 2H (API # 47-095-02427)—Pyle Run Pad
- Spock Unit 3H (API # 47-095-02428)—Pyle Run Pad

If you have any questions please feel free to contact me at (303) 357-7223.

Sincerely,

A handwritten signature in black ink, appearing to read "MGriffith", is written over a horizontal dotted line.

Megan Griffith  
Permitting Agent  
Antero Resources Corporation

Enclosures

State of West Virginia  
Department of Environmental Protection - Office of Oil and Gas  
Well Operator's Report of Well Work

API 47- \_\_\_\_\_ - \_\_\_\_\_ County \_\_\_\_\_ District \_\_\_\_\_  
Quad \_\_\_\_\_ Pad Name \_\_\_\_\_ Field/Pool Name \_\_\_\_\_  
Farm name \_\_\_\_\_ Well Number \_\_\_\_\_  
Operator (as registered with the OOG) \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing \_\_\_\_\_ Easting \_\_\_\_\_  
Landing Point of Curve Northing \_\_\_\_\_ Easting \_\_\_\_\_  
Bottom Hole Northing \_\_\_\_\_ Easting \_\_\_\_\_

Elevation (ft) \_\_\_\_\_ GL Type of Well  New  Existing Type of Report  Interim  Final  
Permit Type  Deviated  Horizontal  Horizontal 6A  Vertical Depth Type  Deep  Shallow  
Type of Operation  Convert  Deepen  Drill  Plug Back  Redrilling  Rework  Stimulate  
Well Type  Brine Disposal  CBM  Gas  Oil  Secondary Recovery  Solution Mining  Storage  Other \_\_\_\_\_  
Type of Completion  Single  Multiple Fluids Produced  Brine  Gas  NGL  Oil  Other \_\_\_\_\_  
Drilled with  Cable  Rotary

Drilling Media Surface hole  Air  Mud  Fresh Water Intermediate hole  Air  Mud  Fresh Water  Brine  
Production hole  Air  Mud  Fresh Water  Brine  
Mud Type(s) and Additive(s)  
\_\_\_\_\_  
\_\_\_\_\_

Date permit issued \_\_\_\_\_ Date drilling commenced \_\_\_\_\_ Date drilling ceased \_\_\_\_\_  
Date completion activities began \_\_\_\_\_ Date completion activities ceased \_\_\_\_\_  
Verbal plugging (Y/N) \_\_\_\_\_ Date permission granted \_\_\_\_\_ Granted by \_\_\_\_\_

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft \_\_\_\_\_ Open mine(s) (Y/N) depths \_\_\_\_\_  
Salt water depth(s) ft \_\_\_\_\_ Void(s) encountered (Y/N) depths \_\_\_\_\_  
Coal depth(s) ft \_\_\_\_\_ Cavern(s) encountered (Y/N) depths \_\_\_\_\_  
Is coal being mined in area (Y/N) \_\_\_\_\_

Reviewed by:  
\_\_\_\_\_

API 47- \_\_\_\_\_ - \_\_\_\_\_ Farm name \_\_\_\_\_ Well number \_\_\_\_\_

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor							
Surface							
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production							
Tubing							
Packer type and depth set							

Comment Details \_\_\_\_\_  
\_\_\_\_\_

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor							
Surface							
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production							
Tubing							

Drillers TD (ft) \_\_\_\_\_ Loggers TD (ft) \_\_\_\_\_  
 Deepest formation penetrated \_\_\_\_\_ Plug back to (ft) \_\_\_\_\_  
 Plug back procedure \_\_\_\_\_  
 \_\_\_\_\_

Kick off depth (ft) \_\_\_\_\_

Check all wireline logs run  caliper  density  deviated/directional  induction  
 neutron  resistivity  gamma ray  temperature  sonic

Well cored  Yes  No  Conventional  Sidewall Were cuttings collected  Yes  No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS \_\_\_\_\_  
 \_\_\_\_\_

WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS \_\_\_\_\_  
 \_\_\_\_\_

WERE TRACERS USED  Yes  No TYPE OF TRACER(S) USED \_\_\_\_\_  
 \_\_\_\_\_



API 47- \_\_\_\_\_ - \_\_\_\_\_ Farm name \_\_\_\_\_ Well number \_\_\_\_\_

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>
_____	_____ TVD _____ MD
_____	_____
_____	_____
_____	_____

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump  
 SHUT-IN PRESSURE Surface \_\_\_\_\_ psi Bottom Hole \_\_\_\_\_ psi DURATION OF TEST \_\_\_\_\_ hrs  
 OPEN FLOW Gas \_\_\_\_\_ mcfpd Oil \_\_\_\_\_ bpd NGL \_\_\_\_\_ bpd Water \_\_\_\_\_ bpd GAS MEASURED BY  
 Estimated  Orifice  Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H <sub>2</sub> S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	

**\*PLEASE SEE ATTACHED EXHIBIT 3**


Please insert additional pages as applicable.

Drilling Contractor \_\_\_\_\_  
 Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
 Logging Company \_\_\_\_\_  
 Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
 Cementing Company \_\_\_\_\_  
 Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
 Stimulating Company \_\_\_\_\_  
 Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Please insert additional pages as applicable.

Completed by \_\_\_\_\_ Telephone \_\_\_\_\_  
 Signature \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

API 47-095-02526 Farm Name Tyrone L. Beem et al Well Number Heintzman Unit 1H					
EXHIBIT 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	3/22/2019	17630		60	Marcellus
2	3/23/2019	17501.552	17336.312	60	Marcellus
3	3/24/2019	17300.864	17135.624	60	Marcellus
4	3/24/2019	17100.176	16934.936	60	Marcellus
5	3/25/2019	16899.488	16734.248	60	Marcellus
6	3/25/2019	16698.8	16533.56	60	Marcellus
7	3/26/2019	16498.112	16332.872	60	Marcellus
8	3/26/2019	16297.424	16132.184	60	Marcellus
9	3/26/2019	16096.736	15931.496	60	Marcellus
10	3/27/2019	15896.048	15730.808	60	Marcellus
11	3/27/2019	15695.36	15530.12	60	Marcellus
12	3/28/2019	15494.672	15329.432	60	Marcellus
13	3/28/2019	15293.984	15128.744	60	Marcellus
14	3/29/2019	15093.296	14928.056	60	Marcellus
15	3/29/2019	14892.608	14727.368	60	Marcellus
16	3/30/2019	14691.92	14526.68	60	Marcellus
17	3/30/2019	14491.232	14325.992	60	Marcellus
18	3/31/2019	14290.544	14125.304	60	Marcellus
19	3/31/2019	14089.856	13924.616	60	Marcellus
20	3/31/2019	13889.168	13723.928	60	Marcellus
21	4/1/2019	13688.48	13523.24	60	Marcellus
22	4/1/2019	13487.792	13322.552	60	Marcellus
23	4/2/2019	13287.104	13121.864	60	Marcellus
24	4/2/2019	13086.416	12921.176	60	Marcellus
25	4/3/2019	12885.728	12720.488	60	Marcellus
26	4/3/2019	12685.04	12519.8	60	Marcellus
27	4/4/2019	12484.352	12319.112	60	Marcellus
28	4/4/2019	12283.664	12118.424	60	Marcellus
29	4/4/2019	12082.976	11917.736	60	Marcellus
30	4/5/2019	11882.288	11717.048	60	Marcellus
31	4/5/2019	11681.6	11516.36	60	Marcellus
32	4/6/2019	11480.912	11315.672	60	Marcellus
33	4/6/2019	11280.224	11114.984	60	Marcellus
34	4/6/2019	11079.536	10914.296	60	Marcellus
35	4/7/2019	10878.848	10713.608	60	Marcellus
36	4/7/2019	10678.16	10512.92	60	Marcellus
37	4/8/2019	10477.472	10312.232	60	Marcellus
38	4/8/2019	10276.784	10111.544	60	Marcellus
39	4/8/2019	10076.096	9910.856	60	Marcellus
40	4/9/2019	9875.408	9710.168	60	Marcellus
41	4/9/2019	9674.72	9509.48	60	Marcellus
42	4/9/2019	9474.032	9308.792	60	Marcellus
43	4/10/2019	9273.344	9108.104	60	Marcellus
44	4/10/2019	9072.656	8907.416	60	Marcellus
45	4/11/2019	8871.968	8706.728	60	Marcellus
46	4/11/2019	8671.28	8506.04	60	Marcellus
47	4/11/2019	8470.592	8305.352	60	Marcellus
48	4/12/2019	8269.904	8104.664	60	Marcellus
49	4/12/2019	8069.216	7903.976	60	Marcellus
50	4/12/2019	7868.528	7703.288	60	Marcellus
51	4/13/2019	7667.84	7502.6	60	Marcellus
52	4/13/2019	7467.152	7301.912	60	Marcellus

## EXHIBIT 2

Stage No.	Stimulations Date	Avg Pump Rate	Avg Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/ other (units)
1	3/22/2019	70.3659	7854.848	7722	3236	260220	6704	N/A
2	3/23/2019	74.9282	8277.811	5678	3992	401960	8987	N/A
3	3/24/2019	74.304	8196.356	5544	3441	401800	8979	N/A
4	3/24/2019	76.1168	8469.32	5424	3785	401320	9053	N/A
5	3/25/2019	76.0761	8323.243	5482	3104	403800	8909	N/A
6	3/25/2019	75.1463	8495.38	5627	3349	400900	8837	N/A
7	3/26/2019	73.9546	8400.905	5688	3273	401280	8745	N/A
8	3/26/2019	73.9669	8396.296	5724	3375	404100	8834	N/A
9	3/26/2019	71.981	8354.431	5436	3412	402600	8917	N/A
10	3/27/2019	74.3854	7999.193	5762	3342	400900	8803	N/A
11	3/27/2019	75.344	8242.58	5621	3520	400020	8793	N/A
12	3/28/2019	76.9613	8339.804	5709	3243	401700	8770	N/A
13	3/28/2019	74.5457	8106.821	5454	3349	404180	11306	N/A
14	3/29/2019	77.5829	8265.353	5630	3627	403500	8874	N/A
15	3/29/2019	77.4724	8248.574	5747	3435	403800	8730	N/A
16	3/30/2019	74.7447	8201.437	5947	3586	404100	8975	N/A
17	3/30/2019	78.4857	8156.356	5669	3443	404200	8825	N/A
18	3/31/2019	80.0436	8191.709	5733	4066	404100	8707	N/A
19	3/31/2019	78.0127	8300.318	5536	3443	404100	8639	N/A
20	3/31/2019	76.5168	8096.075	5470	3984	404640	8782	N/A
21	4/1/2019	77.0691	8220.282	5241	3326	403240	8808	N/A
22	4/1/2019	75.2739	8174.725	5584	3556	411300	8659	N/A
23	4/2/2019	78.3867	8168.818	5923	3543	400900	8904	N/A
24	4/2/2019	79.5456	8302.12	5792	3876	405720	8732	N/A
25	4/3/2019	81.064	8084.148	5457	3631	402140	8632	N/A
26	4/3/2019	82.1902	8069.787	5363	3830	400340	8539	N/A
27	4/4/2019	82.0548	8032.868	5731	3861	405960	8646	N/A
28	4/4/2019	81.6292	7878.465	5951	3351	402120	8720	N/A
29	4/4/2019	82.2134	7865.039	5607	3802	402180	8731	N/A
30	4/5/2019	81.4487	7760.414	4876	3614	401200	8709	N/A
31	4/5/2019	83.1998	7814.271	5745	3863	404340	8623	N/A
32	4/6/2019	82.1833	7692.48	5873	3490	404260	8667	N/A
33	4/6/2019	82.1538	7732.326	5434	3833	401800	8718	N/A
34	4/6/2019	82.0845	7810.325	5254	3826	404620	8636	N/A
35	4/7/2019	82.9085	7821.614	4693	3847	403960	8648	N/A
36	4/7/2019	81.8845	7736.435	6307	3773	401800	8651	N/A
37	4/8/2019	83.985	7633.746	6059	3715	403000	8548	N/A
38	4/8/2019	81.5374	7504.726	6115	3720	405180	8606	N/A
39	4/8/2019	81.3795	7543.762	5918	3872	403500	8562	N/A
40	4/9/2019	82.6616	7554.355	5391	4190	400220	10030	N/A
41	4/9/2019	82.0961	7297.286	5506	4003	400780	8648	N/A
42	4/9/2019	82.7977	7379.246	4733	4160	404380	8535	N/A
43	4/10/2019	82.9821	7422.77	5682	4098	411020	8576	N/A
44	4/10/2019	81.3135	7341.828	5489	4016	405040	8587	N/A
45	4/11/2019	81.5396	7169.889	5248	4165	406900	8457	N/A
46	4/11/2019	82.9181	7269.795	5356	3902	408200	8608	N/A
47	4/11/2019	80.8023	7133.176	5396	4056	408480	8959	N/A
48	4/12/2019	82.1321	6850.587	5422	4445	411420	8496	N/A
49	4/12/2019	81.98	7118.554	4801	4478	404440	8445	N/A
50	4/12/2019	82.212	7059.727	5817	3847	408700	8560	N/A
51	4/13/2019	82	7108	5789	4536	401600	9104	N/A
52	4/13/2019	82.1178	6860.386	4851	3903	402210	8554	N/A
		<b>78.8</b>	<b>7,976</b>	<b>5,635</b>	<b>3,666</b>	<b>18,009,120</b>	<b>394,741</b>	<b>TOTAL</b>

**EXHIBIT 3**

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Silty Sandstone	75	175	75	175
Silty Shale	175	335	175	335
shaly sand	335	425	335	425
Shale	425	855	425	855
Dolomitic Shale	855	1,005	855	1,005
Shaly Siltstone	1,005	1,105	1,005	1,105
Silty Sandstone	1,105	1,325	1,105	1,325
Shaly Sand	1,325	1,475	1,325	1,475
Sandstone	1,475	1,725	1,475	1,725
Silty, Shaly, Sandstone	1,725	1,765	1,725	1,765
Sandstone, Tr Shale, Tr Coal	1,765	1,805	1,765	1,805
Silty Sandstone	1,805	1,885	1,805	1,885
Shaly Siltstone	1,885	1,890	1,885	1,984
Big Lime	1,915	2,788	2,009	2,996
Fifty Foot Sandstone	2,788	2,889	2,996	3,108
Gordon	2,889	3,033	3,108	3,267
Fifth Sandstone	3,033	3,420	3,267	3,700
Bayard	3,420	3,857	3,700	4,188
Speechley	3,857	4,104	4,188	4,467
Balltown	4,104	4,626	4,467	5,054
Bradford	4,626	5,016	5,054	5,493
Benson	5,016	5,233	5,493	5,736
Alexander	5,233	6,313	5,736	6,988
Sycamore	6,174	6,288	6,805	6,963
Middlesex	6,288	6,379	6,963	7,121
Burkett	6,379	6,409	7,121	7,188
Tully	6,409	6,434	7,188	7,255
Marcellus	6,434	NA	7,255	NA

\*Please note Antero determines formation tops based on mud logs that are only run on one well on a multi-well pad. The measured depth (MD) data on subsequent wells may be slightly different due to the well's unique departure.



# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	3/22/2019
Job End Date:	4/13/2019
State:	West Virginia
County:	Tyler
API Number:	47-095-02526-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Heintzman 1H
Latitude:	39.40007500
Longitude:	-80.90429200
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,513
Total Base Water Volume (gal):	19,700,714
Total Base Non Water Volume:	0



## Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Antero Resources	Carrier/Base Fluid	Water	7732-18-5	100.00000	88.55807	
Sand	U.S. Well Services, LLC	Proppant	Crystalline Silica, quartz	14808-60-7	100.00000	11.24187	
HCL Acid (12.6%-17.5%)	U.S. Well Services, LLC	Bulk Acid	Water	7732-18-5	87.40000	0.11578	
			Hydrogen Chloride	7647-01-0	17.50000	0.02692	
WFRA-405	U.S. Well Services, LLC	Friction Reducer	2-Propenoic acid, polymer with 2-propenamide	9003-06-9	30.00000	0.01624	
			Hydrated light distillate (petroleum)	64742-47-8	30.00000	0.01307	
SI-1200	U.S. Well Services, LLC	Scale Inhibitor	Water	7732-18-5	80.00000	0.00522	
			Ethylene Glycol	107-21-1	40.00000	0.00373	
			Sodium Salt of Diethylenetriaminepenta(methylenephosphonic acid)	68155-78-2	10.00000	0.00065	

			Sodium Chloride	7647-14-5	10.00000	0.00065
LGC-15	U.S. Well Services, LLC	Gelling Agents				
			Guar Gum	9000-30-0	50.00000	0.00301
			Petroleum Distillates	64742-47-8	60.00000	0.00285
			Suspending agent (solid)	14808-60-7	3.00000	0.00046
			Surfactant	68439-51-0	3.00000	0.00018
Bioclear 2000	U.S. Well Services, LLC	Anti-Bacterial Agent				
			2,2-dibromo-3-nitrilopropionamide	10222-01-2	20.00000	0.00389
			Deionized Water	7732-18-5	28.00000	0.00222
SI-1300	U.S. Well Services, LLC	Scale Inhibitor				
			Ethylene glycol	107-21-1	40.00000	0.00327
			Proprietary Scale Inhibitor	Proprietary	20.00000	0.00121
K-BAC 1020	U.S. Well Services, LLC	Anti-Bacterial Agent				
			2,2-dibromo-3-nitrilopropionamide	10222-01-2	21.00000	0.00024
			Polyethylene glycol	25322-68-3	50.00000	0.00023
			Deionized Water	7732-18-5	30.00000	0.00014
AI-303	U.S. Well Services, LLC	Acid Corrosion Inhibitors				
			Ethylene glycol	107-21-1	40.00000	0.00004
			Cinnamaldehyde	104-55-2	20.00000	0.00001
			Formic acid	64-18-6	20.00000	0.00001
			Butyl cellosolve	111-76-2	20.00000	0.00001
			Polyether	60828-78-6	10.00000	0.00001
			Acetophenone,thiourea,formaldehyde polymer	68527-49-1	5.00000	0.00000

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

\* Total Water Volume sources may include fresh water, produced water, and/or recycled water

\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

State of West Virginia  
Department of Environmental Protection - Office of Oil and Gas  
Discharge Monitoring Report  
Oil and Gas General Permit

Company Name: Antero Resources Corporation  
API No: 47-095-02526 County: Tyler  
District: Centerville Well No: Heintzman Unit 1H  
Farm Name: Tyrone L. Beem et al  
Discharge Date/s From:(MMDDYY) 05/31/19 To: (MMDDYY) 05/31/19  
Discharge Times. From: 0:00 To: 24:00  
Total Volume to be Disposed from this facility (gallons): 996,304  
Disposal Option(s) Utilized (write volumes in gallons):

- (1) Land Application: \_\_\_\_\_ (Include a topographical map of the Area.)  
(2) UIC: 130,517 Permit No. 3400923821, 3400923823, 3400923824, 3416729731, 3416729543, 3416729464, 3416729445  
(3) Offsite Disposal: \_\_\_\_\_ Site Location: \_\_\_\_\_  
(4) Reuse: 865,787 Alternate Permit Number: \_\_\_\_\_  
(5) Centralized Facility: \_\_\_\_\_ Permit No. \_\_\_\_\_  
(6) Other method: \_\_\_\_\_ (Include an explanation)

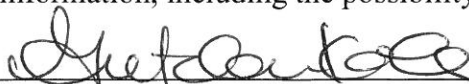
Follow Instructions below to determine your treatment category:

Optional Pretreatment test: n/a Cl- mg/l n/a DO mg/l

1. Do you have permission to use expedited treatment from the Director or his representative?  
(Y/N) n/a If yes, who? \_\_\_\_\_ and place a four (4) on line 7.  
If not go to line 2
2. Was Frac Fluid or flowback put into the pit? (Y/N) n/a If yes, go to line 5. If not, go to line 3.
3. Do you have a chloride value pretreatment (see above)? (Y/N) n/a If yes, go to line 4  
If not, go to line 5.
4. Is the Chloride level less than 5000 mg/l? (Y/N) n/a If yes, then enter a one (1) on line 7.
5. Do you have a pretreatment value for DO? (See above) (Y/N) n/a If yes, go to line 6  
If not, enter a three (3) in line 7.
6. Is the DO level greater than 2.5 mg/l?(Y/N) n/a If yes, enter a two (2) on line 7. If not, enter a three (3) on line 7.
7. n/a is the category of your pit. Use the Appropriate section.
8. Comments on Pit condition: n/a No pit on site.

Name of Principal Exec. Officer: Gretchen Kohler  
Title of Officer: Senior Environmental and Regulatory Manager  
Date Completed: 8/9/19

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.



Signature of a Principal Exec. Officer or Authorized agent.

Category 1  
Sampling Results  
API No : \_\_\_\_\_

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	5	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	0.5	_____	0.5	_____	mg/l
Cl	5,000	_____	5,000	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**			Monitor	_____	mg/l
Oil and Grease			Monitor	_____	mg/l
Total Al***			Monitor	_____	mg/l
TSS			Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume			Monitor	_____	Gal
Flow			Monitor	_____	Gal/min
Disposal Area			Monitor	_____	Acres

\*\*\* Al is only reported if the pH is above 9.0

Category 2  
Sampling Results  
API No : \_\_\_\_\_

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	10	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	0.5	_____	0.5	_____	mg/l
Cl*	12,500	_____	12,500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**			Monitor	_____	mg/l
Oil and Grease			Monitor	_____	mg/l
Total Al***			Monitor	_____	mg/l
TSS			Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume			Monitor	_____	Gal
Flow			Monitor	_____	Gal/min
Disposal Area			Monitor	_____	Acres

\* Can be 25,000 with inspector's approval,

(Inspector's signature): \_\_\_\_\_

Date: \_\_\_\_\_

\*\* Include a description of your aeration technique.

Aeration Code: \_\_\_\_\_

\*\*\* Al is only reported if the pH is above 9.0

Category 3  
Sampling Results  
API No : \_\_\_\_\_

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	20	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	0.5	_____	0.5	_____	mg/l
Cl*	12,500	_____	12,500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**			Monitor	_____	mg/l
Oil and Grease			Monitor	_____	mg/l
Total Al***			Monitor	_____	mg/l
TSS			Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume			Monitor	_____	Gal
Flow			Monitor	_____	Gal/min
Disposal Area			Monitor	_____	Acres

\* Can be 25,000 with inspector's approval,

(Inspector's signature): \_\_\_\_\_ Date: \_\_\_\_\_  
 \*\* Include a description of your aeration technique. Aeration Code: \_\_\_\_\_  
 \*\*\* Al is only reported if the pH is above 9.0.

Category 4  
Sampling Results  
API No: \_\_\_\_\_

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	1	_____	N/A	N/A	Days
Fe	Monitor	_____	Monitor	_____	mg/l
D.O.	Monitor	_____	Monitor	_____	mg/l
Settleable Sol.	Monitor	_____	Monitor	_____	mg/l
Cl*	12,500	_____	12,500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**			Monitor	_____	mg/l
Oil and Grease			Monitor	_____	mg/l
TSS			Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume			Monitor	_____	Gal
Flow			Monitor	_____	Gal/min
Activated Carbon (0.175)			N/A	N/A	lb/B1
Date Site Reclaimed	N/A	N/A		_____	10 days from dis.
Disposal Area			Monitor	_____	Acres

\* Can be 25,000 with inspector's approval,

(Inspector's signature): \_\_\_\_\_ Date: \_\_\_\_\_

LATITUDE 39°25'00"

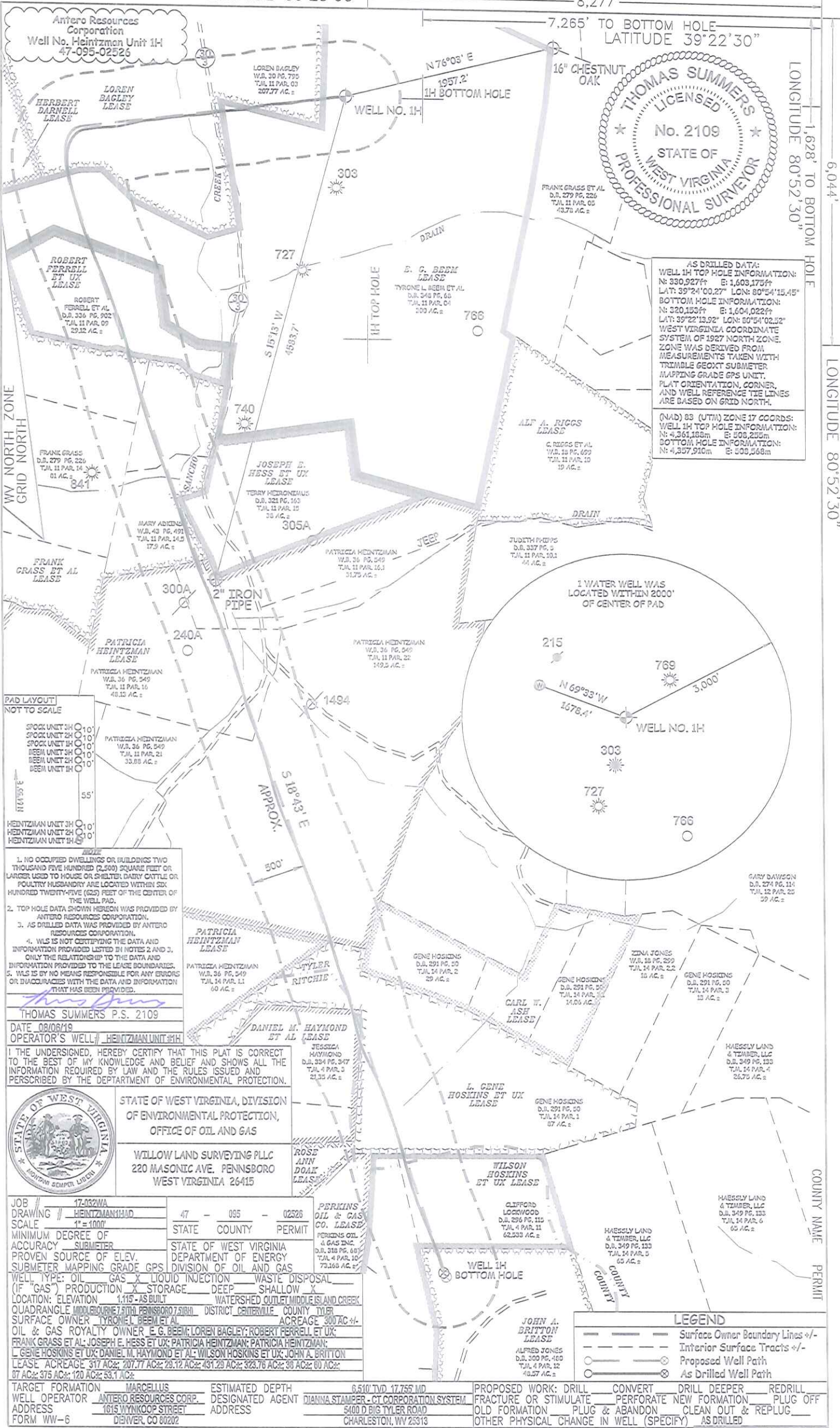
8,277'

7.265' TO BOTTOM HOLE  
LATITUDE 39°22'30"

LONGITUDE 80°52'30"

6,044'

LONGITUDE 80°52'30"



AS DRILLED DATA:  
 WELL 1H TOP HOLE INFORMATION:  
 N: 330,927ft E: 1,603,175ft  
 LAT: 39°24'00.27" LON: 80°54'15.45"  
 BOTTOM HOLE INFORMATION:  
 N: 320,153ft E: 1,604,022ft  
 LAT: 39°22'13.92" LON: 80°54'02.52"  
 WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE THE LINES ARE BASED ON GRID NORTH.

(NAD) 83 (UTM) ZONE 17 COORDS:  
 WELL 1H TOP HOLE INFORMATION:  
 N: 4,361,188m E: 508,255m  
 BOTTOM HOLE INFORMATION:  
 N: 4,357,910m E: 508,568m

1 WATER WELL WAS LOCATED WITHIN 2000' OF CENTER OF PAD

PAD LAYOUT NOT TO SCALE

FOOT UNIT 1H  
 FOOT UNIT 2H  
 FOOT UNIT 3H  
 BEEM UNIT 1H  
 BEEM UNIT 2H  
 BEEM UNIT 3H

HEINTZMAN UNIT 1H  
 HEINTZMAN UNIT 2H  
 HEINTZMAN UNIT 3H

1. NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.
2. TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
3. AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
4. WLS IS NOT CERTIFYING THE DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3, ONLY THE RELATIONSHIP TO THE DATA AND INFORMATION PROVIDED TO THE LEASE BOUNDARIES.
5. WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.

THOMAS SUMMERS P.S. 2109

DATE 08/08/19  
 OPERATOR'S WELL: HEINTZMAN UNIT 1H

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

WILLOW LAND SURVEYING PLLC  
 220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

JOB #	17-0321WA	PERKINS OIL & GAS CO. LEASE
DRAWING #	HEINTZMAN1HAD	PERKINS OIL & GAS INC.
SCALE	1"=100'	D.B. 318 PG. 60 T.J. 4 PAR. 10 73,165 AC. ±
MINIMUM DEGREE OF ACCURACY	SUBMETER	STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS
PROVEN SOURCE OF ELEV.	SUBMETER	WELL TYPE: OIL <input checked="" type="checkbox"/> GAS <input checked="" type="checkbox"/> LIQUID INJECTION <input type="checkbox"/> WASTE DISPOSAL <input type="checkbox"/>
SUBMETER MAPPING GRADE GPS	GPS	(IF "GAS") PRODUCTION <input checked="" type="checkbox"/> STORAGE <input type="checkbox"/> DEEP <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/>
LOCATION: ELEVATION	1,115'-AS BUILT	WATERSHED OUTLET MIDDLE ISLAND CREEK
QUADRANGLE	MIDDLEBURY T. 50N PENNSBORO T. 50N	DISTRICT
SURFACE OWNER	TYRONE L. BEEM ET AL	ACREAGE
OIL & GAS ROYALTY OWNER	E.G. BEEM; LOREN BAGLEY; ROBERT FERRRELL ET UX;	
LEASE ACRES	317 AC. ±; 207.77 AC. ±; 29.12 AC. ±; 431.29 AC. ±; 323.76 AC. ±; 30 AC. ±; 80 AC. ±; 87 AC. ±; 375 AC. ±; 120 AC. ±; 53.1 AC. ±;	
TARGET FORMATION	MARCELLUS	ESTIMATED DEPTH
WELL OPERATOR	ANTERO RESOURCES CORP.	DESIGNATED AGENT
ADDRESS	1615 WYNNKOOP STREET	DIANNA STAMPER - CT CORPORATION SYSTEM
FORM	WW-6	ADDRESS
	DEIVER, CO 60202	5400 D. BIG TYLER ROAD
		CHARLESTON, WV 25313

LEGEND

- Surface Owner Boundary Lines +/-
- Interior Surface Tracts +/-
- Proposed Well Path
- As Drilled Well Path

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL  
 FRACTURE OR STIMULATE PERFORATE NEW FORMATION PLUG OFF  
 OLD FORMATION PLUG & ABANDON CLEAN OUT & REPLUG  
 OTHER PHYSICAL CHANGE IN WELL (SPECIFY) AS DRILLED